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Avenview

HDMI 1.3 Extender over CAT5 with IR Control Path

User's Guide

Models

HDMI-C5-IR-SET

HD ready 1080p HDMI HDCP 7.1CH Audio X.V.Color

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Section 1: Getting Started

1.1 Important Safeguards

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
    - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
    - Repair or attempted repair by anyone not authorized by us.
    - Any damage of the product due to shipment.
    - Removal or installation of the product.
    - Causes external to the product, such as electric power fluctuation or failure.
    - Use of supplies or parts not meeting our specifications.
    - Normal wear and tear.
    - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

1.2 Safety Instructions

The HDMI-C5-IR-SET, HDMI 1.3 Extender over CAT5 with IR Control Path has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the HDMI-C5-IR-SET should be used with care. Read the following safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Do not dismantle the housing or modify the module.
- Dismantling the housing or modifying the module may result in electrical shock or burn.
- Refer all servicing to qualified service personnel.
- Do not attempt to service this product yourself as opening or removing housing may expose you to dangerous voltage or other hazards
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Have the module checked by a qualified service engineer before using it again.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

1.3 Regulatory Notices Federal Communications Commission (FCC)

This equipment has been tested and found to comply with Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

1.4 Introduction

The Avenview HDMI-C5-IR-SET HDMI 1.3 over CAT5 with IR Control Path Extender boosts up your video/audio transmission distance up to 60m (200ft) in HDTV 1080i format, 40m (130ft) in HDTV 1080p format, and 20m (65ft) in HDTV 1080p with 36 bit color depth. With only one cost effective LAN cable, users can easily extend HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other HDMI sources compliant with TMDS to distant display monitors including HDMI/DVI enabled TV sets or LCD PC monitors. With the state-of-the-art Silicon Image chipsets equipped, deep color video, DTS-HD or Dolby TrueHD audio, and HDCP supports and compatibility are all further insured. This flexibility makes HDCP compliant DVD players or PS3 transmit utmost high quality video and audio with a greater distance at the minimal cost, when integrating several components apart. In addition, with the embedded infrared (IR) receiving and emitting units to facilitate the control path, users can enjoy high quality audio/video and control the HDMI sources from the remote site instantly.

The HDMI-C5-IR-SET consists of Transmitter (HDMI-C5-IR-S) and Receiver (HDMI-C5-IR-R). The Transmitter (HDMI-C5-IR-S) captures the input HDMI/DVI signals and carry the signals through one RJ-45 connector into one cost effective CAT-5/5e/6 LAN cable. The Receiver (HDMI-C5-IR-R) equalizes the sent TMDS multimedia data. The transmission distance between the sending and receiving units can be up to 60m (200ft) under HD (720p/1080i) or 40m (130ft) under Full HD (1080p). With an 8-level equalization control knob on the receiving unit, users can adjust the equalization strength to the received TMDS signals accordingly, and therefore optimize the transmission distance between source and destination.

- Silicon Image chipset embedded for best compatibility and reliability HDMI video input supports up to 1080p resolution
- HDMI 1.3c Compliant
- HDCP 1.1 compliant
- Extends the transmission distance up to 60m (200ft) from the sources under 1080i or 720p
- Extends the transmission distance up to 40m (130ft) from the sources under 1080p
- Provides independent DDC channel, fully HDCP compliant
- Minimize the cable skew by adjustable 8-level equalization control
- Pure unaltered uncompressed 7.1ch digital HDMI over LAN cable transmission
- Embedded IR Control Path
- Allows cascading
- Perfectly integrated with other HDMI-C5-IR Series products

1.5 Package Contents

Before you start the installation of the converter, please check the package contents.

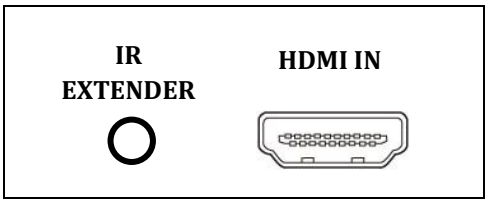
- HDMI-C5-IR-S x 1
- HDMI-C5-IR-R x 1
- IR Transmitter Cable x 1
- IR Receiver Cable x 1
- Power Adapter (+5VDC, 4A) x 1
- User's Manual x 1

1.6 Before Installation

- Put the product in an even and stable location. If the product falls down or drops, it may cause an injury or malfunction.
- Don't place the product in too high temperature (over 50°C), too low temperature (under 0°C) or high humidity.
- Use the DC power adapter with correct specifications. If inappropriate power supply is used then it may cause a fire.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.

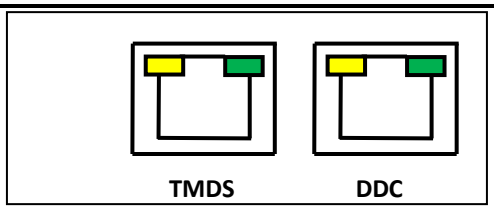
1.7 Panel Description

FRONT PANEL (Transmitter, HDMI-C5-IR-S)



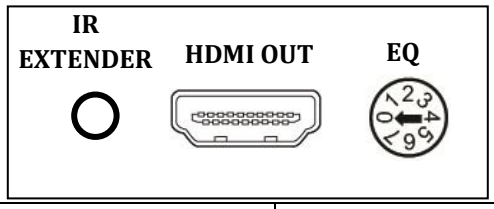
1. IR Extender (Transmitter)	2. HDMI Input

REAR PANEL (Transmitter, HDMI-C5-IR-S)



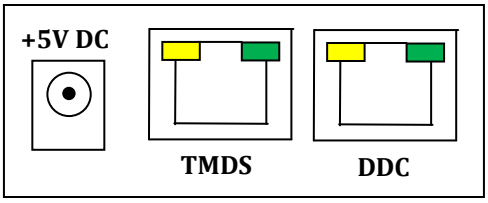
1. TMDS – RJ45 Out	2. DDC – RJ45 Out

FRONT PANEL (Receiver, HDMI-C5-IR-R)



1. IR Extender (Receiver)	2. HDMI Out
3. Equalization	

REAR PANEL (Receiver, HDMI-C5-IR-R)



1. 5V 4A DC Power Connector	2. TMDS – RJ45 In
3. DDC – RJ45 In	

1.8 IR Control Path

IR Transmitter Cable	IR Receiver Cable

IR Transmitter: Plug-in IR Transmitter cable to HDMI-C5-IR-S to transmit all IR command signals.

IR Receiver: Plug-in IR Receiver cable to HDMI-C5-IR-R to receive all IR command signals from Transmitter.

> *IR cables longer than 2meter (6 feet) may not work.*

1.8.1 Supported IR Data Formats

Date Format	Suitable	Not Recommended
NEC	☑	
RC5	☑	
TOSHIBA MICOM CODE	☑	
GRUNDIG CODE	☑	
SONY 12 BIT CODE	☑	
SONY 15 BIT CODE	☑	
SONY 20 BIT CODE	☑	
RCA CODE		☑
RCM CODE		☑
MATSUSHITA CODE		☑
MITSUBISHI CODE	☑	
ZENITH CODE	☑	
JVC CODE	☑	
M50560-001P	☑	
MN6125H	☑	
MN6125L	☑	
MN6014-C5D7	☑	
MN6014-C6D6	☑	
MC14457P	☑	
LC7464(AHEA)	☑	
GEMINI-CM	☑	

1.9 Installation

1. To setup Avenview HDMI-C5-IR-SET follow these steps for connecting to a device:
2. Connect your HDMI / DVI source (such as a DVD player) to the transmitting unit (HDMI-C5-IR-S).
3. Connect the IR transmitting cable to the transmitter (HDMI-C5-IR-S), and make the IR emitter directly point to the IR of HDMI source.
4. Connect your HDMI / DVI display (such as a LCD TV or plasma TV) to the receiver (HDMI-C5-IR-R).
5. Connect the IR receiving cable to the receiver (HDMI-C5-IR-R), and make the IR receiver directly point to the user.
6. Make sure CAT-5/5e/6 LAN cable is tightly connected and not loose.
7. Plug in 5V DC power cord to the power jack of the receiving unit HDMI-C5-IR-R.
8. Plug in 5V DC power cord to the power jack of the transmitting unit HDMI-C5-IR-S.

> *If a flickering or a blinking image is seen, try to adjust the rotational switch to improve the cable skew. 0 stands for the strongest EQ while 7 stands for the weakest. Try adjusting the EQ from 7 to 0*

1.10 General Troubleshooting

Problem	Possible Solution
No Image	• Check if connection to the source and the display are correct. • Ensure that display device supports 480p, 720p and 1080p resolution
Screen Defects Appear	• This product supports up to 1080p (1920x1200) resolution. • Check the DVI and HDMI connection • If outputting from a PC. Check the maximum resolution range of the graphics card.

Section 2: Specifications

Item	Description	
Units	HDMI-C5-IR-S	HDMI-C5-IR-R
Unit Description	HDMI 1.3 Transmitter	HDMI 1.3 Receiver
HDMI Compliance	HDMI 1.3c	
HDCP Compliance	Yes	
Video Bandwidth	Single Link 340 MHz (10.2Gbps)	
Supported Resolutions	480i / 480p / 720p / 1080i / 1080p60	
Resolution and Distance (8-bit)	**Full HD:** (1080p) ~40meter (130feet) (CAT5e) / 50meter (165feet) (CAT6) **HD:** (720p/1080i)-50meter (165feet) (CAT5e) / 60meter (200feet) (CAT6)	
Audio Support	Surround Sound (up to 7.1 Ch) or Stereo Digital Audio	
Equalization	-	8 Level Digital Control
Input TMDS Signal	1.2 Volts (peak-to-peak)	
Input DDC Signal	5 Volts (peak-to-peak, TTL)	
ESD Protection	- Human body model — ±15kV (air-gap discharge) & ±8kV (contact discharge) - Core chipset — ±8kV	
Input	1 x HDMI	2 x RJ45
Output	2 x RJ45	1 x HDMI
HDMI Source Control	Controllable through IR control path from IR receiver at receiver sites	
IR Remote Control	Electro-optical characteristics: τ = 25 Carrier frequency: 38kHz	
HDMI Connector	Type A (19 pin female)	
RJ45 Connector	WE/SS 8P8C with 2 LED indicators	
3.5mm Connector	IR Transmitter	IR Receiver
Rotary Switch	None	EQ
Dimensions	3.3" X 2.4" x 1" (L x W x H)	
Power Supply	5V 4A DC	
Power Consumption	1 Watt (max)	

Environmental

Operating Temperature	32˚ ~ 104˚F (0˚ to 40˚C)
Storage Tempearture	-4˚ ~ 140˚F (-20˚ ~ 60˚C)
Relative Humidity	20~90% RH (no condensation)

Notice

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.
2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C.
3. The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m or 1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suit than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid LAN cables are your only choice.
4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.
5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, you can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the LAN cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your LAN cables. For resolution greater than 1080i or 1280x1024, a CAT6 cable is recommended.
7. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

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